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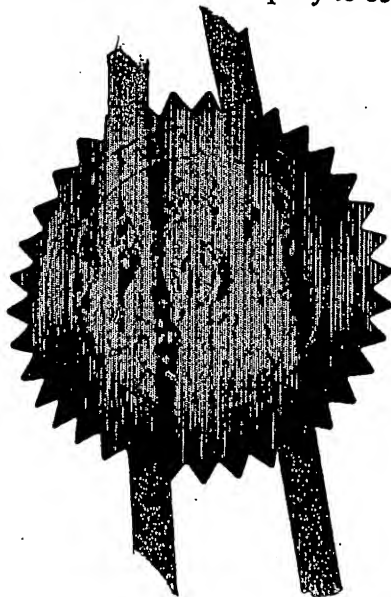
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Dated 3 August 2004

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18JUN03 E816035-1 C00150
P01/7700 0.000314156.1

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(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
South Wales
NP10 8QQ

1. Your reference

587

0314156.1

2. Patent application number

(The Patent Office will fill in this part)

18 JUN 2003

3. Full name, address and postcode of the or of each applicant (underline all surnames)

DSine TECHNOLOGY LIMITED
SOUTH BANK TECHNO PARK
90 LONDON ROAD
LONDON SE1 6LN
GB

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

8451015001

4. Title of the invention

PROXIMITY SENSING SYSTEM

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

COHEN ALAN NICOL
2 GROVE PLACE
TATSFIELD
Nr. WESTERHAM
KENT
TN16 2BB

Patents ADP number (if you know it)

6963557001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number
(if you know it)

Date of filing
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(day / month / year)

8. Is a statement of inventors and of right to grant of a patent required in support of this request? (Answer Yes if:

YES

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

Patents Form 1/77

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Continuation sheets of this form

Description 4

Claim(s) 2

Abstract 1

Drawing(s) 1 only

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

Date 18/04/03

12. Name and daytime telephone number of person to contact in the United Kingdom

A. N. Cohen

01959 577172

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- 1 -

Proximity Sensing System

5 The present invention relates to a vehicle proximity sensing system whereby the area sensing means forms part of and is contained in the mirror housing assembly of a vehicle such as a large public or commercial vehicle and/or into the cab of the same vehicle.

10 These vehicles due to their size and construction have a number of areas around the vehicle where the driver cannot directly see.

15 In particular it is well known that exterior or wing mirrors on vehicles do not cure all blind spots where the field of view of the driver is limited by the configuration and set up of the mirror, size of vehicle, the position of the driver etc. and there have been many arrangements of fixed and adjustable mirrors which enable these blind spots to be overcome.

There have also been many arrangements using camera monitor systems to reduce the reduction in view.

20 Attempts have been made to have mirrors which change their angle when the steering wheels of the vehicle are turned and Patents US 6151175, EP 1026035, US 4229992, CA 1148395, CA 2203023, AU 3492695, US 6315419 and US 3640609 and Patent Applications PCT/GB02/02717, US20020005778A1, WO0185491 and WO9701246 describe systems and devices which automatically adjust mirrors in an articulated
25 lorry. Even with this type of adjustable system there can be a problem with visibility under or around the driver's door and under any wing mirror.

30 We have now devised a mechanism whereby the reduction in field of view is eliminated or reduced by delivering an interpreted signal to the driver.

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- According to the invention there is provided an area sensing system for detecting obstacles by a vehicle with an exterior mirror which system comprises (i) an area sensing means mounted in the mirror housing of an exterior mirror of the vehicle which sensing means is capable of detecting obstacles (ii) a control signal transmission means mounted inside or adjacent to the mirror housing and connected to the area sensing means in which, when the area sensing means detects an obstacle a control signal is sent by the control signal transmission means to a control signal receiving means inside the cab of the vehicle.
- 5
- 10 This control signal transmission means may be mounted directly inside the mirror housing or mounted outside of the housing fitted to the outside of the vehicle. For example the control signal transmission means may be mounted onto a fixed window next to the mirror housing.
- 15 The area sensing means preferably produces a digital area signal based on the area of detection, preferably the area signal is processed and analysed by digital signal processing means. The combination of area sensing means and digital signal processing means preferably enables the system to be capable of distinguishing between different types of object. The system is preferably also able to determine the speed and direction of the vehicle from the sensing means without the use of signals from the vehicles electrical or electronic system.
- 20
- 25 The area sensing means is preferably a means which can sense obstacles and objects in its field of view, and can e.g. be based on an electromagnetic radiation such as infra-red or visible light e.g. laser light or on ultra-sound etc. or other remote non-contact distance sensing means.

The area sensing means is preferably not of the type intended to relay a live video type image onto a monitor type screen.

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Preferably there is a control signal receiving means inside the driver's cab of the vehicle which can deliver a warning signal to the driver. This warning signal means may be in the form of either or both of a visual or audible means. When the signal is received a driver warning is actuated to alert the driver of the danger.

5

The control signal transmitting and receiving means is preferably wireless e.g. in the form of either a radio based means or infra red means etc.

10 In use, when an obstacle or danger is detected by the area sensing means, a control signal is transmitted through the control signal transmission means and received by the control signal receiving means mounted inside the cab of the vehicle and the warning delivered to the driver.

15 The control signal receiving means and driver warning means may be mounted into the same unit and together preferably requires only a single power connection from within the vehicle.

Preferably also the area sensing and wireless control signal transmitting means together require only one power connection.

20

25 The invention is illustrated in the accompanying drawing in which an articulated vehicle (1) has a remote area sensing means shown schematically at (4) which can detect obstacles in its field of view (2) and which is mounted into or adjacent the housing of an exterior wing mirror and monitors an area shown as (2). There is a wireless control signal transmitting means (5) which is connected to the sensing means (4). There is a control signal wireless receiver in the driver's cab shown at (6) which includes an alarm system which receiver can receive a control signal from the radio transmitter (5).

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In use, where there is an obstacle (3) which can be in a blind spot of the driver; the area sensing signal generated by the area signal generator (4) will impinge on the obstacle and so the sensing means (4) will detect this obstacle. The sensing means sends a signal to wireless control signal transmitting means (5) and a radio signal is
5 then sent to receiver (6) which activates an alarm which can be an audio and/or visual signal and so alerts the driver to the obstacle.

The signal received by (4) can be processed so that information is available to the driver as to the distance away from the obstacle, the location of the obstacle and the
10 rate of closing in on the obstacle is available in suitable form e.g. on a screen.

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Claims

1. A sensing system for detecting obstacles by a vehicle with an exterior mirror which system comprises (i) an area sensing means mounted in the mirror housing of an exterior mirror of the vehicle which area sensing means is capable of detecting obstacles and (ii) a control signal transmission means mounted inside or adjacent to the mirror housing and connected to the area sensing means in which, when the area sensing means detects an obstacle a control signal is sent by the control signal transmission means to a control signal receiver inside the cab of the vehicle.
2. A system as claimed in claim 1 in which the control signal transmission means is mounted directly inside the mirror housing or mounted outside of the housing fitted to the outside of the vehicle.
3. A system as claimed in claim 1 or 2 in which the area sensing means produces a digital signal based on the area of detection and the signal is processed and analysed by digital signal processing means which interprets and outputs the control signal.
4. A system as claimed in claim 1, 2 or 3 in which the area sensing means is a means which can sense obstacles and objects in its field of view, and is based on electromagnetic radiation or on ultra-sound or on other remote non-contact distance sensing means.
5. A system as claimed in any one of the preceding claims in which there is a control signal receiving means inside the driver's cab of the vehicle which can deliver a warning to the driver.
6. A system as claimed in claim 5 in which the driver warning means is in the form of either or both of a visual or audible means.

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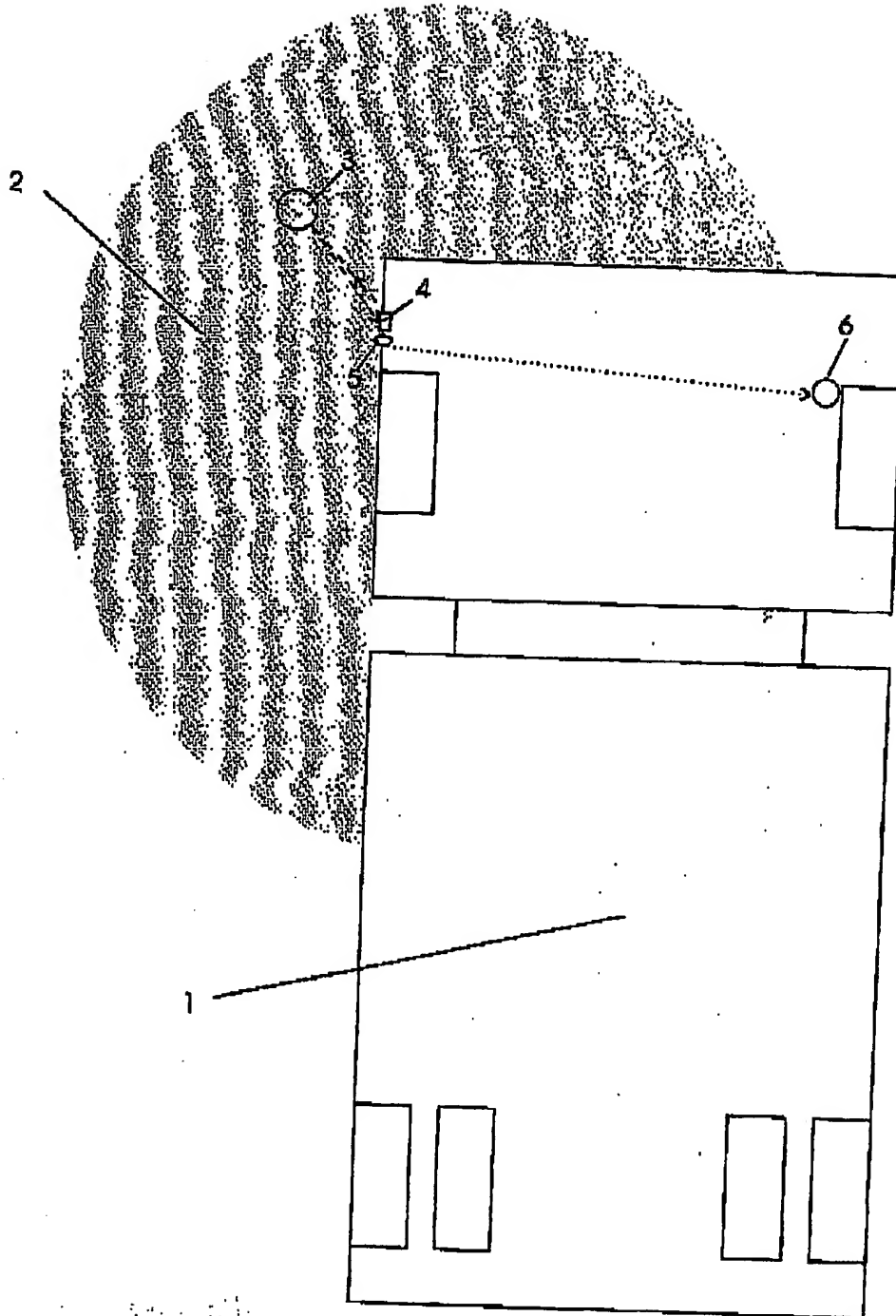
7. A system as claimed in claim 6 in which the control signal transmitting and receiving means is wireless.
8. A system as claimed in any one of the preceding claims in which the control signal receiving means and driver warning means are mounted into the same unit and together requires only a single power connection from within the vehicle.
9. A system as claimed in any one of the preceding claims in which the area sensing and wireless control signal transmitting means together require only one power connection.

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Abstract

5 A vehicle proximity sensing system which can be mounted into or near the mirror housing assembly of a vehicle such as a large public or commercial vehicle which detects obstacles near the front of the vehicle e.g. under the exterior rear mirror or otherwise not visible to the driver and sends a control signal into the cab of the same vehicle to alert the driver through a warning device.

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